

May 14, 1999

EA 99-116

Mr. R. P. Powers  
Senior Vice President  
Nuclear Generation Group  
American Electric Power Company  
500 Circle Drive  
Buchanan, MI 49107-1395

SUBJECT: D. C. COOK INSPECTION REPORT 50-315/99004(DRP); 50-316/99004(DRP)

Dear Mr. Powers:

On April 16, 1999, the NRC completed an inspection at your D. C. Cook Units 1 and 2 reactor facilities. The inspection was an examination of activities conducted under your license as they relate to compliance with the Commission rules and regulations and with the conditions of your license. Areas reviewed included Operations, Maintenance, Engineering, and Plant Support. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations of activities in progress. The enclosed report presents the results of that inspection.

During this inspection period, we noted examples where operators demonstrated a conservative decision-making philosophy. We also observed that maintenance activities were generally performed in accordance with approved procedures and utilized appropriate radiological protection practices. In addition, we noted that plant maintenance and engineering personnel expanded the scope of problem investigations, where appropriate, to include other equipment and programs related to the failed equipment. A particularly noteworthy example was the decision to promptly inspect all 4 kilovolt breakers following the identification of a loose anti-shock spring in a 4 kilovolt breaker.

In contrast to the improving performance described above, continuing problems were identified with the corrective action program, the adequacy of maintenance and surveillance test procedures, and the performance of required safety evaluations. In addition, you did not recognize that changes in the reactor coolant system temperature also resulted in reactivity changes until prompted by NRC inspectors. Consequently, you did not know if you had operated the facility in compliance with your Technical Specifications until you subsequently performed a detailed engineering evaluation of several evolutions which had the potential to add positive reactivity. We also noted that your procedural controls on the usage of overtime were weak which resulted in your staff having a difficult time evaluating your overtime usage. Your continued attention in these areas appears warranted.

Based on the results of this inspection, the NRC has determined that four violations of NRC requirements occurred. The first violation, which was identified by your staff, involved three safety-related surveillance test procedures for the centrifugal charging pumps that contained inadequate instructions to operate the pumps safely due to deficiencies in the procedure

revision process. The second violation, which was identified by NRC inspectors, involved two examples of condition reports that were inappropriately categorized as conditions adverse to quality rather than as significant conditions adverse to quality. The third violation, which was identified by NRC inspectors, involved the failure to perform a 10 CFR Part 50.59 safety evaluation for a procedure change. The fourth violation resulted from review of a 1996 event report. That violation was identified by your staff and involved the failure to follow the appropriate Technical Specification Limiting Condition for Operation Action Statement for an inoperable pressurizer power operated relief valve.

These Severity Level IV violations are being treated as Non-Cited Violations (NCVs). Appendix C of the Enforcement Policy requires that for Severity Level IV violations to be dispositioned as NCVs, they be appropriately placed in the licensee's corrective action program. Implicit in that requirement is that the corrective action program be fully acceptable. The D. C. Cook Plant corrective action program was not adequate and has been the focus of significant attention by your staff to improve the program. While your staff and the NRC have not yet concluded that the corrective action program is fully effective, the corrective action program improvement efforts are underway and captured in the D. C. Cook Restart Plan which is under the formal oversight of the NRC through the NRC Manual Chapter 0350 Process, "Staff Guidelines for Restart Approval." Consequently, these issues are being dispositioned as NCVs.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room.

Sincerely,

/s/ J. A. Grobe  
John A. Grobe, Director  
Division of Reactor Safety

Docket Nos. 50-315; 50-316  
License Nos. DPR-58; DPR-74

Enclosure: Inspection Report 50-315/99004(DRP);  
50-316/99004(DRP)

cc w/encl: A. C. Bakken III, Site Vice President  
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**\*See previous concurrences**

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R. Powers

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-315; 50-316  
License Nos: DPR-58; DPR-74

Report No: 50-315/99004(DRP); 50-316/99004(DRP)

Licensee: Indiana and Michigan Power  
500 Circle Drive  
Buchanan, MI 49107-1395

Facility: Donald C. Cook Nuclear Generating Plant

Location: 1 Cook Place  
Bridgman, MI 49106

Dates: March 3 through April 16, 1999

Inspectors: B. L. Bartlett, Senior Resident Inspector  
B. J. Fuller, Resident Inspector  
J. D. Maynen, Resident Inspector

Approved by: A. Vogel, Chief  
Reactor Projects Branch 6  
Division of Reactor Projects

## EXECUTIVE SUMMARY

### D. C. Cook Units 1 and 2 NRC Inspection Report 50-315/99004(DRP); 50-316/99004(DRP)

This inspection included aspects of licensee operations, maintenance, engineering, and plant support. The report covers a 6-week period of resident inspection activities and includes follow-up to issues identified during previous inspection reports.

#### Operations

- C The operating crews demonstrated a conservative decision-making philosophy by stopping two surveillance test procedures following the identification of problems. (Section O1.1)
- C The inspectors identified that the licensee did not recognize that reactor coolant system temperature changes while in cold shutdown also resulted in reactivity changes. In response to this issue, the licensee identified that several previously performed plant activities had the potential to heat up the reactor coolant system and add positive reactivity, which was prohibited by Technical Specifications since all four emergency diesel generators were inoperable. The inspectors reviewed the licensee's evaluation of these occurrences and concluded that the significance of performing these activities was negligible since these activities resulted in no measurable reactivity changes. (Section O1.2)
- C Case Specific Checklist Item 2A, "Failure to Promptly Identify and Evaluate Conditions Adverse to Quality." The inspectors concluded that the licensee inappropriately categorized two condition reports documenting maintenance and surveillance test procedure deficiencies as conditions adverse to quality rather than as significant conditions adverse to quality. A Non-Cited Violation was issued for the failure to determine the root cause of and implement corrective actions to preclude the repetition of significant conditions adverse to quality. The NRC's assessment of the licensee's effectiveness in addressing this case specific checklist item will continue as part of oversight of the licensee's restart effort. (Section O7.1)
- C The licensee's procedural controls on the use of overtime were weak. Specifically, the plant operations policy procedure did not provide sufficient guidance on the use of time sheets by plant personnel; consequently, the licensee had difficulty assessing compliance with the plant overtime policy. One minor violation was identified for a licensed operator exceeding Technical Specification requirements on overtime. (Section O7.2)

#### Maintenance

- C The inspectors concluded that the observed work activities were performed in accordance with approved procedures; the current revision of the procedures were in use at the work sites; and proper work safety and radiological protection practices were used. The inspectors also observed a good questioning attitude on the part of the workers when problems were identified during maintenance activities. In particular, the inspectors noted two examples where the workers and supervisors expanded their

investigation scope to include related areas not directly affected by the identified problem. (Section M1.1)

- C The licensee's plan for repairing the Unit 2 chemical and volume control system cross-tie valves appeared to include appropriate contingency actions for removing and replacing the valves if repairs were not possible. While the licensee experienced minor personnel errors and unforeseen material condition issues which delayed the completion of the maintenance activities, the valves were successfully repaired. (Section M2.1)
- C The licensee appropriately expanded their piping cleanliness inspection when foreign material was identified in the chemical and volume control system cross-tie header. In addition, the licensee's engineering staff appropriately questioned the possibility of foreign material entering other safety systems from the refueling water storage tanks. (Section M2.1)
- C The inspectors identified multiple examples of deficient maintenance procedures and job orders revealing a potential programmatic weakness in this area. These maintenance procedures and job orders, which were used for performing safety-related maintenance activities, allowed workers to omit steps which they determined were not necessary without additional review and approval. (Section M3.1)
- C Case Specific Checklist Item 1A, "Inadequate Instructions in Surveillance Tests." The inspectors concurred with the licensee's conclusion that three of the four surveillance test procedures, which were utilized to demonstrate operability of the safety-related centrifugal charging pumps, contained inadequate instructions to operate the pumps safely due to deficiencies in the procedure revision process. A Non-Cited Violation was issued for the failure to have procedures appropriate to the circumstances. The NRC's assessment of the licensee's effectiveness in addressing this case specific checklist item will continue as part of oversight of the licensee's restart effort. (Section M3.2)

## Engineering

- C During this inspection period, the licensee's staff continued with the discovery phase of the Expanded System Readiness Reviews (ESRRs). The ESRRs comprised a significant portion of the licensee's restart effort. In accordance with the NRC Inspection Manual Chapter 0350 Inspection Plan, the NRC established an inspection team to provide oversight of the ESRR process. The NRC oversight team will document their findings in a separate inspection report. (Section E1.1)
- C Case Specific Checklist Item 4A, "Failure to Perform Safety Evaluations or Safety Evaluation Screenings." A safety evaluation screening performed in support of a change to a surveillance procedure did not identify that the procedure change resulted in operation of the plant other than as described in the Updated Final Safety Analysis Report. Additionally, the licensee's use of 10 CFR Part 50.59 safety evaluation screenings appeared inconsistent. A Non-Cited Violation of 10 CFR Part 50.59 was identified for the failure to perform a safety evaluation for the procedure change. The NRC's assessment of the licensee's effectiveness in addressing this case specific checklist item will continue as part of oversight of the licensee's restart effort. (Section E1.2)

## Plant Support

- C     The inspectors identified two minor problems with the implementation of the radiological protection program outside the plant protected area. The inspectors found a radiation area sign on a publicly accessible beach just outside the perimeter fence. Additionally, the steam generator storage building, used for storing the removed Unit 2 steam generators, was cluttered with tools and work debris. No uncontrolled releases of radioactive material were identified. (Section R1)



## **Report Details**

### **Summary of Plant Status**

The licensee maintained both Unit 1 and Unit 2 in Mode 5, Cold Shutdown, throughout the inspection period. During this inspection period, the licensee completed the replacement of the leaking Unit 2 chemical and volume control system (CVCS) cross-tie header valves. The licensee also completed the hinged armature auxiliary (HFA) relay testing on the Unit 1 CD emergency diesel generator.

In accordance with NRC Manual Chapter 0350, "Staff Guidelines for Restart Approval," two public meetings were held on site between the NRC and licensee management. The meetings were held on March 24 and April 15, 1999. The public discussion included updates on the progress of the licensee's Expanded System Readiness Reviews (ESRRs). At the end of this report period, the ESRRs were in progress.

## **I. Operations**

### **O1 Conduct of Operations**

#### **O1.1 General Comments**

##### **a. Inspection Scope (71707)**

The inspectors conducted frequent observations of control room and in-plant operation of equipment during the extended outage of both reactor units. Specific events and noteworthy observations are detailed in the sections below.

##### **b. Observations and Findings**

The inspectors observed examples where the operating crews demonstrated a conservative decision-making philosophy. Specifically, on March 5, 1999, the operators stopped the Unit 2 east residual heat removal (RHR) pump surveillance test after erratic flow indication was observed. Also, on March 30, 1999, the operators questioned the step sequence of a centrifugal charging pump (CCP) surveillance test procedure and did not perform the surveillance test until the procedural questions were resolved. This issue is discussed in Section M3.2 of this report.

The inspectors identified one issue regarding insufficient operational awareness for the protection of plant equipment important to core safety. Specifically, on March 3, 1999, the inspectors identified that fencing and other barriers around the Unit 1 condensate storage tank and the Unit 1 refueling water storage tank (RWST) had been removed. The barriers had previously been removed as part of the movement of the spare Unit 1 main transformer to another facility, but had not been restored. The inspectors notified licensing personnel that the barriers had not been replaced; however, as of April 9, 1999, the licensee had not replaced the barriers. As a result, the inspectors discussed the issue with the plant manager. While the inspectors noted that there was not a regulatory requirement for the barriers, the plant manager understood that the barriers had been installed in response to industry events involving vehicles inadvertently impacting plant equipment and causing plant problems. The plant manager agreed that the barriers should be re-installed and directed plant personnel to restore the barriers to

the original configuration. In addition, the plant manager indicated that he would address the lack of action by licensing personnel regarding this issue.

c. Conclusions

The operating crews demonstrated a conservative decision-making philosophy by stopping two surveillance test procedures following the identification of problems. However, the inspectors also concluded that the licensee lacked sensitivity to the removal of protective barriers around equipment important to core safety. Specifically, fencing and barriers were removed and not replaced around the Unit 1 refueling water storage and condensate storage tanks without management cognizance.

O1.2 Reactivity Control in Cold Shutdown

a. Inspection Scope (71707)

On March 5, 1999, the operators stopped a Unit 2 east RHR pump test due to erratic flow indication. In response to this occurrence, the licensee changed the test procedure. The inspectors discussed the procedure change with the operators and determined that the operators had not considered reactivity changes which resulted from changes in the reactor coolant system (RCS) temperature. The inspectors also reviewed Technical Specifications (TS); Operations Head Instruction (OHI) 2000, "Operations Department Guidance Policy," Revision 4; Plant Manager's Standing Order (PMSO) 189, "Positive Reactivity Considerations," Revision 0; and several condition reports pertaining to this issue.

b. Observations and Findings

On January 11, 1999, the licensee's operations shift manager declared all four emergency diesel generators inoperable, and the licensee entered TS Action Statement 3.8.1.2. This action statement required, in part, that the licensee suspend all operations involving positive reactivity changes. Due to the plant conditions which existed, the moderator temperature coefficient was positive. Therefore, any RCS temperature increase also represented a positive reactivity addition.

The inspectors discussed these observations with the operating crews and plant management on March 9, 1999. The operating crews had been maintaining an RCS temperature band on both units between 120EF and 130EF; however, there was no restriction on plant evolutions within this temperature band. The operators did not consider temperature changes within this band to also be changes in reactivity. Following the inspectors' questions, operations management directed the operating crews to maintain RCS temperature between 120EF and the then current RCS temperature. Initially, the operating crews were given verbal guidance concerning RCS temperature control through the operations shift manager. This guidance was later entered into the shift manager's log and added to a written night order which was provided to the operating crews.

The inspectors noted that OHI 2000 required that short-term plant operation guidance be provided to the operators in hard copy. Hard copy was defined as a technical direction memo or other memoranda that have a completed 10 CFR Part 50.59 safety screening attached. On March 17, 1999, licensee management's position on reactivity

control was formalized in PMSO 189, which included a 10 CFR Part 50.59 safety screening. This PMSO contained a definition of operations that result in positive reactivity changes. This PMSO also directed the operators to write a condition report (CR) if any increase, momentary or otherwise, in RCS temperature was noted or if the net reactivity change for any operation was greater than zero.

Operations personnel researched past plant activities to determine if any inadvertent reactivity additions had occurred since January 11, 1999. As a result, the licensee initiated CRs for three evolutions which potentially resulted in a RCS heatup.

- C CR 99-4852, "On February 13, 1999, Both [Unit 1] RHR Pumps Were Stopped, Which Resulted in RCS Temperature Increase"
- C CR 99-4853, "On February 13, 1999, Both [Unit 2] RHR pumps Were Stopped, Which Resulted in RCS Temperature Increase"
- C CR 99-4858, "A Small Amount of RCS Heatup Was Noted During the Unit 2 East RHR Train Surveillance"

The licensee evaluated these occurrences to determine the magnitude of the reactivity change. The licensee's engineering staff concluded that no reactivity addition occurred since the instrument used to meet the TS surveillance requirements did not show any change in RCS temperature during the evolutions in question. This instrument was considered safety-related and routinely calibrated, but it had a minimum readability of 5EF. The maximum RCS temperature increase for these evolutions was less than 2EF as indicated by the nonsafety-related plant process computer. The inspectors concurred with the licensee's conclusion that no violations of TS occurred.

The inspectors discussed the effect of RCS temperature changes with reactor engineering personnel. The engineering staff performed a bounding calculation at the RCS boron concentration normally maintained while shutdown. The calculation showed that an RCS heatup from 70EF to 212EF would result in an effective boron dilution of approximately 40 parts per million (ppm). The inspectors verified both units' RCS boron concentration versus the TS shutdown margin requirement. The inspectors determined that both units were maintained with an excess of over 500 ppm boron concentration above the minimum concentration required. Therefore, a 40 ppm dilution in RCS boron concentration would not result in either unit going below the TS shutdown margin requirement. The inspectors reviewed the CR evaluations and determined that the safety significance due to a reactivity addition resulting from an RCS heatup in cold shutdown was negligible. Therefore, the licensee's failure to provide RCS temperature control guidance while in cold shutdown in accordance with OHI 2000 between January 11 and March 17, 1999, constituted a violation of minor significance and is not subject to formal enforcement action.

c. Conclusions

The inspectors identified that the licensee did not recognize that reactor coolant system temperature changes while in cold shutdown also resulted in reactivity changes. In response to this issue, the licensee identified that several previously performed plant activities had the potential to heat up the reactor coolant system and add positive reactivity, which was prohibited by Technical Specifications since all four emergency

diesel generators were inoperable. The inspectors reviewed the licensee's evaluation of these occurrences and concluded that the significance of performing these activities was negligible since these activities resulted in no measurable reactivity changes.

## **O7 Quality Assurance in Operations**

### **O7.1 Case Specific Checklist Item 2A, "Failure to Promptly Identify and Evaluate Conditions Adverse to Quality"**

As a result of NRC and licensee identified problems relating to the adequacy of the corrective action program, the NRC identified this performance area as one that requires oversight during the NRC's assessment of the licensee's restart effort as delineated in letters to the licensee dated July 30, 1998, and updated on October 13, 1998. The inspectors reviewed the following issue as it related to NRC Manual Chapter 0350 Case Specific Checklist Item 2A, "Failure to Promptly Identify and Evaluate Conditions Adverse to Quality."

#### **a. Inspection Scope (71707)**

During follow-up inspection activities pertaining to the adequacy of maintenance and surveillance test procedures (Section M3.1 and M3.2), the inspectors evaluated the licensee's disposition of several CRs. The inspectors reviewed the CRs and followed the licensee's corrective action process to determine if the issues were appropriately categorized, and promptly corrected.

#### **b. Observations and Findings**

In January 1997 the inspectors identified problems with the quality of maintenance procedures, which were documented in NRC Inspection Report 50-315/97002(DRP); 50-316/97002(DRP). In response to the violations identified in that report, the licensee initiated a maintenance department procedural upgrade program. In addition, in response to inspector-identified problems with operations procedure quality, the licensee had committed to an operations department procedure upgrade program for all normal operating procedures, with a target completion date of December 1999. As a result, the licensee issued Plant Manager's Procedure 2010.PRC.002, "Procedure Correction, Change, and Review," for the development, correction, change and revision of plant procedures.

During this inspection period, the inspectors noted that the licensee determined that CR 99-06607, "Procedures for Performing Maintenance," was a condition adverse to quality. This CR documented that Maintenance Procedure 12 MHP [Maintenance Head Procedure] 5021.001.007, "Conval Clampseal Globe Valve Maintenance," Revision 8, Step 7.2.5, circumvented the procedural requirements for performing repairs on safety related equipment by directing the worker to contact engineering for repair instructions. This issue was similar to the issue discussed in Section M3.1 of this report. The inspectors noted that the licensee had determined that the corrective action for CR 99-06607 was "Resolve - No Cause" (referred to as a level 4 CR). "Resolve - No Cause" meant that the specific procedure would be corrected but that broader corrective action was not required. Based on the known programmatic problems with maintenance procedures which could have resulted in significant failures to properly perform

maintenance on safety related equipment, the inspectors concluded that CR 99-06607 should have been categorized as a significant condition adverse to quality.

In addition, the inspectors noted that the licensee determined that CR 99-07213, "Operations Charging Pump Surveillance Fails to Show Adequate Pump Protection," was a condition adverse to quality and the corrective actions should be "Resolve - No Cause." This CR documented three procedures which would have resulted in the safety-related CCPs being operated with no discharge flowpath (Section M3.2). Operation of the CCPs with no discharge flow path could result in significant damage to the pumps. As a result, the inspectors concluded that the licensee should have characterized this issue as a significant condition adverse to quality.

10 CFR Part 50, Appendix B, Criteria XVI, "Corrective Action," states, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. The failure to determine the cause and take corrective actions to preclude repetition for significant conditions adverse to quality as described in CR 99-06607, "Procedures for Performing Maintenance," and CR 99-07213, "Operations Charging Pump Surveillance Fails to Show Adequate Pump Protection," are examples of a violation of 10 CFR Part 50, Appendix B, Criterion XVI.

This Severity Level IV violation is being treated as a Non-Cited Violation (NCV). Appendix C of the Enforcement Policy requires that for Severity Level IV violations to be dispositioned as NCVs, they be appropriately placed in the licensee's corrective action program. Implicit in that requirement is that the corrective action program be fully acceptable. The D. C. Cook Plant corrective action program was not adequate and has been the focus of significant attention by your staff to improve the program. While your staff and the NRC have not yet concluded that the corrective action program is fully effective, the corrective action program improvement efforts are underway and captured in the D. C. Cook Plant Restart Plan which is under the formal oversight of the NRC through the NRC Manual Chapter 0350 process, "Staff Guidelines for Restart Approval." Consequently, this issue is being dispositioned as an NCV (50-315/316/99004-01(DRP)).

c. Conclusions

Case Specific Checklist Item 2A, "Failure to Promptly Identify and Evaluate Conditions Adverse to Quality." The inspectors concluded that the licensee inappropriately categorized two condition reports documenting maintenance and surveillance test procedure deficiencies as conditions adverse to quality rather than as significant conditions adverse to quality. A Non-Cited Violation was issued for the failure to determine the root cause of and implement corrective actions to preclude the repetition of significant conditions adverse to quality. The NRC's assessment of the licensee's effectiveness in addressing this case specific checklist item will continue as part of oversight of the licensee's restart effort.

## O7.2 Control and Use of Overtime

### a. Inspection Scope (71707)

During a routine tour of the control room complex, the inspectors observed an off-going assistant shift manager (ASM) performing administrative work after performing turnover activities to the next shift. The inspectors interviewed operations and plant performance assurance department personnel and reviewed the licensee's process for the control and use of overtime.

### b. Observations and Findings

On April 9, 1999, the inspectors questioned the off-going ASM who was writing a CR after the shift turnover process had been completed. The ASM stated that the issue being documented in the CR had been identified late in the shift. The ASM explained that since only about 45 minutes were needed to perform the shift turnover, it was acceptable to use about 30 minutes to complete administrative work. In response to the inspectors questions, the ASM initiated CR 99-08030 to document the possibility of exceeding the working hours limitations.

The inspectors subsequently reviewed a copy of the ASM's key card entries to the site over a several day period, and determined that for the 48-hour period beginning at 5:09 p.m. eastern standard time, April 8, 1999, the ASM worked for 24 hours and 15 minutes. Technical Specification 6.2.2 required, in part, that the amount of overtime worked by plant staff members performing safety-related functions must be limited in accordance with the NRC Policy Statement on working hours (Generic Letter 82-12). Generic Letter 82-12, "Nuclear Power Plant Staff Working Hours," stated, in part, that an individual should not be permitted to work more than 24 hours in any 48-hour period (excluding shift turnover time). The ASM's overtime in excess of that allowed by TS 6.2.2 constituted a violation of minor significance and is not subject to formal enforcement action.

Following the identification of this occurrence, the inspectors performed a detailed review of the licensee's control and use of overtime and determined that licensee personnel routinely used time sheets for tracking and auditing overtime. The time sheets for contractors and hourly employees appeared to be generally complete and up-to-date; however, the time sheets for managerial employees appeared to be generally inaccurate and not always up-to-date. Salaried employees generally only included those hours for which they received compensation and did not record those hours for which no remuneration was received.

The inspectors also determined that Plant Managers Instruction 4010, "Plant Operations Policy," Revision 12, did not provide sufficient guidance on the use of time sheets by plant personnel, which contributed to the submission of inaccurate time sheets. Consequently, the licensee had difficulty assessing compliance with the plant overtime policy. In response to the above issues, the licensee initiated a prompt assessment to evaluate their control and use of overtime.

c. Conclusions

The licensee's procedural controls on the use of overtime were weak. Specifically, the plant operations policy procedure did not provide sufficient guidance on the use of time sheets by plant personnel; consequently, the licensee had difficulty assessing compliance with the plant overtime policy. One minor violation was identified for a licensed operator exceeding Technical Specification requirements on overtime.

## **II. Maintenance**

### **M1 Conduct of Maintenance**

#### **M1.1 General Comments**

a. Inspection Scope (61726, 62707)

The inspectors observed selected portions of the following maintenance job orders, action requests, and surveillance testing activities.

- C Unit 1 Maintenance Head Procedure (01-MHP) 2291.PMT [Post-Maintenance Test].HFATRA, "Post Maintenance Testing for Unit 1 Train A HFA Relays," Revision 1
- C Unit 2 Operations Head Procedure (02-OHP) 4030.STP [Surveillance Test Procedure].054E, "East Residual Heat Removal Train Operability Test - Shutdown," Revision 7
- C Job Order (JO) C0047368, "Check Calibration and Replace As Needed 1-IPI-323 (Unit 1 West Residual Heat Removal Suction Pressure Indicator)"
- C JO C0047903, "2-CS-534 (CVCS Charging Pumps Discharge Cross-Tie Header to Unit 2 Boron Injection Tank), Disassemble and Repair Leak By"
- C JO C0047944, "Perform Checks of HFA Relays on the Unit 1 CD (Train "A") Diesel Generator"
- C JO C0048257, "Troubleshoot 2-NRI-31 (Unit 2, Channel 1 Source Range Neutron Flux Detector)"
- C JO C0048658, "Troubleshoot to Identify Cause of 1-OME-34E (Unit 1, East Essential Service Water Strainer Inlet Gate) Inoperability"
- C Action Request A0181302, "Inspect 4kV [Kilovolt] Breakers for Loose Anti-Shock Springs."

b. Observations and Findings

The inspectors concluded that the observed work activities were performed in accordance with procedures. The current revision of the appropriate procedures were in use at the work sites, and proper work safety and radiological protection practices were noted. The inspectors also observed a good questioning attitude on the part of the

workers when problems were identified during maintenance activities. In particular, the inspectors observed that the workers and supervisors expanded their investigation scope to include related areas not directly affected by the identified problem.

For example, the licensee promptly responded to the discovery that a 4kV safety-related breaker had a loose anti-shock spring which could have resulted in the spurious closure of the breaker during a seismic event. The licensee expanded the scope of their investigation to include all similar 4kV breakers in both units and identified one additional breaker with a loose anti-shock spring.

A second example of a good questioning attitude occurred when the worker performing troubleshooting on a failed Unit 2 Essential Service Water (ESW) motor actuator suggested that a detailed root cause of the failure was necessary due to generic industry problems. Testing of the failed key, historical data, and motor-operated valve (MOV) programmatic issues were considered during the investigation. The inspectors concluded that the licensee effectively expanded the scope of the investigation to include related areas which could have been affected.

c. Conclusions

The inspectors concluded that the observed work activities were performed in accordance with approved procedures; the current revision of the procedures were in use at the work sites; and proper work safety and radiological protection practices were used. The inspectors also observed a good questioning attitude on the part of the workers when problems were identified during maintenance activities. In particular, the inspectors noted two examples where the workers and supervisors expanded their investigation scope to include related areas not directly affected by the identified problem.

**M2 Material Condition of Facilities and Equipment**

M2.1 Chemical and Volume Control System Cross-Tie Work

a. Inspection Scope (62707)

On October 8, 1998, the licensee identified leakage through the CVCS cross-tie header which was documented in NRC Inspection Report 50-315/98027(DRP); 50-316/98027(DRP). On March 18, 1999, the licensee began work to repair or replace the leaking Unit 2 cross-tie header valves. The inspectors followed the licensee's repair efforts and observed selected portions of the maintenance activities.

b. Observations and Findings

On March 18, 1999, the operators began draining the CVCS in preparation for installing a blank flange to isolate the Unit 1 CVCS from the Unit 2 CVCS. Once isolated, the licensee planned to repair the Unit 2 CVCS cross-tie header isolation valves, 2-CS-534 and 2-CS-536, by replacing the valve internals. The licensee's work plan appeared to include appropriate contingencies for removing and replacing the valves if repairs were not possible. However, during the maintenance activities the licensee experienced minor personnel errors and unforeseen material condition issues which resulted in work delays. Specifically:



- C Excessive time was needed to drain the Unit 1 boron injection tank (BIT) due to isolation valve leakage. The draining was expected to take less than 1 hour. It actually took 12 hours to drain the BIT.
- C The licensee lost material traceability of the blank flange following manufacture which required that a second blank flange be manufactured.
- C The valve 2-CS-534 sealing joint was over torqued which required the replacement of 2-CS-534.

The CVCS cross-tie header was out of service and not required with both units in Mode 5; therefore, these unforeseen delays were not safety significant. The licensee planned to leave the blank flange installed until a design change to replace the cross-tie isolation valves with a different type of valve could be installed.

During a cleanliness inspection of the CVCS cross-tie piping above valve 2-CS-534, the licensee's quality control personnel discovered small particulate foreign material inside the header. As a result, the licensee initiated CR 99-06180 to document this finding. The licensee expanded the cleanliness inspection to include piping both upstream and downstream of the cross-tie header and determined that with the exception of two small grains, the foreign material was confined to the piping within the cross-tie header.

The licensee had previously identified foreign material in both units' RWSTs. Based on the material found in the CVCS cross-tie and the potential for foreign material migration to other systems, engineering personnel wrote CR 99-7532 to request an evaluation of the emergency core cooling systems for foreign material prior to entering Mode 4.

c. Conclusions

The licensee's plan for repairing the Unit 2 chemical and volume control system cross-tie valves appeared to include appropriate contingency actions for removing and replacing the valves if repairs were not possible. While the licensee experienced minor personnel errors and unforeseen material condition issues which delayed the completion of the maintenance activities, the valves were successfully repaired.

The licensee appropriately expanded their piping cleanliness inspection when foreign material was identified in the chemical and volume control system cross-tie header. In addition, the licensee's engineering staff appropriately questioned the possibility of foreign material entering other safety systems from the refueling water storage tanks.

### **M3 Maintenance Procedures and Documentation**

#### **M3.1 Programmatic Weakness of Maintenance Instructions**

a. Inspection Scope (62707, 71707)

During a routine observation of corrective maintenance, the inspectors questioned the licensee's policy of allowing workers to mark as not applicable (N/A) those steps in maintenance procedures that they determined were not required. The inspectors performed routine follow-up into the use of N/As, use of vague or general guidance with

job orders, and the technical issues identified during the corrective maintenance being observed.

b. Observations and Findings

On April 1, 1999, the inspectors observed the troubleshooting of the Unit 1 east ESW strainer inlet gate in accordance with JO C0048568. After reviewing the JO instructions, the inspectors questioned the licensee's programmatic controls on JO activities. The JO instructions directed the maintenance workers to use a separate procedure, 12-IHP [Instrumentation Head Procedure] 5021.EMP [Electrical Maintenance Procedure]. 003, "Limitorque SMB-0 through SMB4, SB-3, L120 - 800 Valve Operator Maintenance," to perform the troubleshooting activities. The JO did not specifically identify which steps in the maintenance procedure were applicable to the troubleshooting of the ESW strainer inlet gate motor operator. The inspectors reviewed the maintenance procedure and noted that it was intended for the complete refurbishment of the specified valve operators; however, Step 5.7 of the maintenance procedure made an allowance for partial use based upon JO activities. This step was being used by maintenance department workers to allow the workers to mark as N/A those procedural steps which the workers determined were not required.

Following the identification of a failed motor pinion gear key, the maintenance department planners added a step to the JO which stated, "Replace the motor shaft key, install motor and verify limits using Procedure 12 IHP 5021.EMP.003." Similar to the original JO, and as allowed by the procedure, the workers again marked as N/A those steps which they determined were unnecessary. The inspectors reviewed the updated JO and determined that the steps the workers chose to perform appeared to be appropriate and included procedural steps which required quality control verifications.

The inspectors interviewed the work-it-now team manager responsible for the electricians that were troubleshooting and repairing the motor actuator to the Unit 1 East ESW strainer inlet gate regarding the question on procedural adequacy. The work-it-now team manager stated that JO C0048658 was typical for troubleshooting and repair work, and that the mechanics and instrumentation and control (I&C) technicians used similar work instructions. The inspectors reviewed other JOs and identified three additional JOs with similar instructions to JO C0048658.

C JO C0047368, "Check Calibration and Replace As Needed 1-IPI -323 (Unit 1 West RHR Suction Pressure Indicator)"

Step 3.a of JO C0047368 stated: "Attempt calibration using procedure 12IHP6030.IMP [Instrument Maintenance Procedure] .066. Refer to vendor manual VTM [Vendor Technical Manual] -ASHC-0001 as needed." Safety-related pressure indicator 1-IPI-323 was utilized for the pump performance requirements of American Society of Mechanical Engineers, Boiler and Pressure Vessel Code, Section XI surveillance tests and for routine starts of the RHR pump. The inspector reviewed Procedure 12 IHP 6030.IMP.066, Revision 4, "Generic Calibration Procedure," and identified that Step 4.1 of the procedure directed the I&C technicians to obtain applicable calibration data (the procedure provided a list of potential sources), perform the calibration, and record the calibration data as required. The generic calibration procedure was not written to provide instructions for specific instrument types or applications. Instead, the

procedure gave general guidance and left the actual calibration performance and selection of calibration parameters to the skill of the craft.

- C JO R0033085, "Refurbish the MOV Actuator to Valve 1-IMO-270, (Unit 1, Train A Safety Injection Pumps Discharge Cross-Tie)"

Step 1 of JO R0033085 directed the workers to perform as found diagnostic testing using Procedure 12 IHP 5030.EMP.002, "MOV Diagnostic Testing."

Step 3.2 of this procedure stated: "This procedure may be performed whole or in part based upon job scope." Again the procedure was long, complicated, and lacked specific guidance.

- C JO R0034281, "Refurbish MOV 1-IMO-361, (Unit 1, Train A Centrifugal Charging Pump Suction Isolation Valve)"

Step 1 of the JO stated: "Refurbish 1-IMO-361 actuator using Procedure 12 IHP 5021.EMP.002 [Limitorque SMB-00 Valve Operator Maintenance]." Step 5.6 of this procedure stated: "This procedure is written for a complete refurbishment but may be performed in part based upon Job Order Activities."

The inspectors' reviewed other maintenance procedures and identified the following safety-related procedures which included steps similar to or identical to the above procedures, regarding the workers being allowed to perform those steps of the procedure they thought were necessary:

- C 12 MHP 5021.001.011, "Crosby Nozzle Relief Valve Maintenance," Revision 5, Step 3.10, which states: "This procedure covers 13 styles of relief valves. Use only the instructions section applicable to valve being worked. Other sections may be discarded."
- C 12 MHP 5021.001.028, "Grinnell Snubber Overhaul and Inspection," Revision 8, Step 4.3, which states: "Sections not performed, based on type of snubber and scope of work, may be N/A'd."
- C 12 MHP 5021.001.012, "Hammer-Dahl and Neles-Jamesbury V500/G110 Series Globe and Angle Globe Valve Maintenance," Revision 7, Step 4.5, which states: "Depending upon the valve series, partial sections of this procedure may be used. . . ."
- C 12 MHP 5021.001.147, "Fisher Type 657 Size 30 - 70 and 87 Diaphragm Actuator Maintenance," Revision 0, Step 4.12, which states: "This procedure may be performed in whole or part based upon job scope. Subsections not to be performed should have the title NA block checked."
- C 12 MHP 5021.001.152, "Fisher Type 667 Size 30 - 70 and 87 Diaphragm Actuator Maintenance," Revision 0, Step 4.14, which states: "This procedure may be performed in whole or part based upon job scope. Subsections not to be performed should have the title N/A block checked."

The inspectors discussed these findings with the director of maintenance who agreed that the procedures appeared to lack sufficient detail. As a result, the director of

maintenance initiated CR 99-07933 to document this issue and track corrective actions. At the end of the inspection report period, this assessment was ongoing.

c. Conclusions

The inspectors identified multiple examples of deficient maintenance procedures and job orders revealing a potential programmatic weakness in this area. These maintenance procedures and job orders, which were used for performing safety-related maintenance activities, allowed workers to omit steps which they determined were not necessary without additional review and approval.

M3.2 Case Specific Checklist Item 1A, "Inadequate Instructions in Surveillance Tests"

As a result of NRC and licensee identified problems relating to inadequate surveillance test procedures, the NRC identified this performance area as one that requires oversight during the NRC's assessment of the licensee's restart effort as delineated in letters to the licensee dated July 30, 1998, and updated on October 13, 1998. The inspectors reviewed the following issue as it related to NRC Manual Chapter 0350 Case Specific Checklist Item 1A, "Inadequate Instructions in Surveillance Tests."

a. Inspection Scope (61726)

While performing a pre-job brief for Surveillance Procedure 02-OHP 4030.STP.052W, "West Centrifugal Charging Pump Operability Test," Revision 6, operations shift personnel identified that the Unit 2 west CCP could have been damaged during the surveillance test due to inadequate instructions in the surveillance test procedure. The inspectors reviewed the circumstances and corrective actions related to this issue.

b. Observations and Findings

On March 30, 1999, while performing a pre-job brief prior to the scheduled performance of Surveillance Procedure 02-OHP 4030.STP.052W, operations shift personnel identified that the procedure directed the start of the Unit 2 west CCP with both the discharge isolation (2-CS-301W) and recirculation line isolation (2-QMO-226) valves shut. Operation of the pump with no discharge flowpath could have result in significant damage to the safety-related pump.

The licensee had previously revised and validated Surveillance Procedure 01-OHP 4030.STP.052E, "East Centrifugal Charging Pump Operability Test." The licensee then used a block and copy technique from that procedure to revise Surveillance Procedures 02-OHP 4030.STP.052W, "West Centrifugal Charging Pump Operability Test," 02-OHP 4030.STP.052E, "East Centrifugal Charging Pump Operability Test," and 01-OHP 4030.STP.052W, "West Centrifugal Charging Pump Operability Test." However, the block and copy technique did not copy all of the sequence steps necessary to operate the CCPs safely. As a result, the licensee initiated CR 99-7213 to document this issue and track corrective actions. The licensee also placed administrative holds on the affected procedures to prevent their use until the step sequence problems were corrected. On April 1, 1999, the licensee completed revisions of the affected procedures and lifted the administrative holds.

10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Surveillance Procedures 02-OHP 4030.STP.052W, "West Centrifugal Charging Pump Operability Test," Revision 6, 02-OHP 4030.STP.052E, "East Centrifugal Charging Pump Operability Test," Revision 6, and 01-OHP 4030.STP.052W, "West Centrifugal Charging Pump Operability Test," Revision 7, were not appropriate to the circumstances, in that, they did not contain instructions to establish a discharge flow path for the centrifugal charging pumps prior to starting the pumps. These surveillance procedures were three examples of a violation of 10 CFR Part 50, Appendix B, Criterion V.

This Severity Level IV violation is being treated as an NCV. Appendix C of the Enforcement Policy requires that for Severity Level IV violations to be dispositioned as NCVs, they be appropriately placed in the licensee's corrective action program. Implicit in that requirement is that the corrective action program be fully acceptable. The D. C. Cook Plant corrective action program was not adequate and has been the focus of significant attention by your staff to improve the program. While your staff and the NRC have not yet concluded that the corrective action program is fully effective, the corrective action program improvement efforts are underway and captured in the D. C. Cook Plant Restart Plan which is under the formal oversight of the NRC through the NRC Manual Chapter 0350 process, "Staff Guidelines for Restart Approval." Consequently, this issue is being dispositioned as an NCV (50-315/316/99004-02(DRP)).

The inspectors reviewed the condition report and questioned operations management concerning the assignment of corrective actions by the condition report screening process. The results of that review are discussed in Section 07.1 of this inspection report.

c. Conclusions

Case Specific Checklist Item 1A, "Inadequate Instructions in Surveillance Tests." The inspectors concurred with the licensee's conclusion that three of the four surveillance test procedures, which were utilized to demonstrate operability of the safety-related centrifugal charging pumps, contained inadequate instructions to operate the pumps safely due to deficiencies in the procedure revision process. A Non-Cited Violation was issued for the failure to have procedures appropriate to the circumstances. The NRC's assessment of the licensee's effectiveness in addressing this case specific checklist item will continue as part of oversight of the licensee's restart effort.

**M8 Miscellaneous Maintenance Issues (92700, 92902)**

- M8.1 (Closed) Unresolved Item (URI) 50-315/99001-04; 50-316/99001-04: Emergency Diesel Generators HFA Relay Post Maintenance Testing. Both the inspectors and the licensee had identified that the licensee's process for procedure approval was not effective in identifying technical errors in the post-maintenance testing (PMT) procedure for the HFA relay work. In response, the licensee performed a root cause analysis of the failure to identify the procedural deficiencies. The inspectors evaluated the licensee's root cause determination and development of corrective actions.

The licensee's root cause analysis team determined that as of March 9, 1999, the PMT procedure for the 1CD emergency diesel generator HFA relays had been revised or stopped prior to execution a total of eight times due to a variety of errors. The problems with development and review of Procedure 01-MHP 2291.PMT.HFA1CD, "Unit 1 CD Emergency Diesel Generator (EDG) HFA Relay Post-Maintenance Test," were entered into the licensee's corrective action program and tracked under CR 99-2970. The root cause analysis team identified eight inappropriate actions that contributed to the poor development and review of the PMT procedure. The root cause was determined to be the lack of representation of all necessary disciplines and expertise on the procedure team. A contributing cause was lack of knowledge of effective procedure review techniques.

The corrective actions implemented by the licensee included supplementing the HFA relay PMT procedure development teams with a representative from Maintenance-Electrical and an individual knowledgeable of diesel generator integrated operation. An additional member was added to the team to act as an independent reviewer. The licensee was developing a plan for procedure developer, reviewer and approved training and qualification. The inspectors evaluated the licensee's corrective actions and concluded that the licensee had adequately addressed the procedural review issues regarding the HFA relay PMT procedure. The inspectors concluded that no violations of regulatory requirements occurred. This URI is closed.

M8.2 (Closed) Licensee Event Report (LER) 50-316/96006-00: "Power Operated Relief Valve Inoperable in Excess of the Time Allowed by the Technical Specification Action Statement, Due to Ground Resulting from Water in Penetration Flood-up Tube." On January 30, 1996, a control room operator noticed that the number 4 accumulator drain valve, 2-IRV-140, showed an intermediate position. On February 23, 1996, the licensee identified that moisture intrusion into the conductor penetration flood-up tubes had caused the position indication for 2-IRV-140 to become grounded. The pressurizer power operated relief valve (PORV), 2-NRV-151, conductors shared the same penetration flood-up tube, so the licensee declared the PORV inoperable, closed the associated block valve, and removed power to the block valve. The other two pressurizer PORVs remained operable. Because the earlier intermediate indication on 2-IRV-140 provided firm evidence that the moisture intrusion had occurred in January 1996, the licensee reported operating with an inoperable PORV in accordance with 10 CFR Part 50.73. The PORV conductors were repaired during the subsequent refueling outage, and the licensee began periodic inspections of both units' penetration flood-up tubes.

In Mode 1, Technical Specification 3.4.11 required, in part, that with one PORV inoperable due to causes other than excessive seat leakage, within 1 hour either restore the PORV to operable status or close the associated block valve and remove power from the block valve; otherwise be in at least hot standby within the next 6 hours and in hot shutdown within the following 6 hours. Contrary to the above, between January 30, 1996, and February 23, 1996, the licensee operated Unit 2 in Mode 1 with PORV 2-NRV-151 inoperable without closing the associated block valve. This Severity Level IV violation is being treated as an NCV. Appendix C of the Enforcement Policy requires that for Severity Level IV violations to be dispositioned as NCVs, they be appropriately placed in the licensee's corrective action program. Implicit in that requirement is that the corrective action program be fully acceptable. The D. C. Cook Plant corrective action program was not adequate and has been the focus of significant

attention by your staff to improve the program. While your staff and the NRC have not yet concluded that the corrective action program is fully effective, the corrective action program improvement efforts are underway and captured in the D. C. Cook Plant Restart Plan which is under the formal oversight of the NRC through the NRC Manual Chapter 0350 process, "Staff Guidelines for Restart Approval." Consequently, this issue is being dispositioned as an NCV (50-316/99004-03(DRP)).

The licensee's findings from the follow-up inspections of the flood-up tubes were described in detail in NRC Inspection Reports 50-315/97004(DRP); 50-316/97004(DRP) and 50-315/97010(DRP); 50-316/97010(DRP). This LER is closed.

### **III. Engineering**

#### **E1 Conduct of Engineering**

##### **E1.1 General Engineering Comments**

During this inspection period, the licensee's staff continued with the discovery phase of the ESRRs. The ESRRs comprised a significant portion of the licensee's restart effort. In accordance with the NRC Manual Chapter 0350 inspection plan, the NRC established an inspection team to provide oversight of the ESRR process. The NRC oversight team will document their findings in a separate inspection report.

##### **E1.2 Case Specific Checklist Item 4A, "Failure to Perform Safety Evaluations or Safety Evaluation Screenings"**

As a result of NRC and licensee identified problems relating to safety evaluations, the NRC identified this performance area as one that requires oversight during the NRC's assessment of the licensee's restart effort as delineated in letters to the licensee dated July 30, 1998, and updated on October 13, 1998. The inspectors reviewed the following issue as it related to NRC Manual Chapter 0350 Case Specific Checklist Item 4A, "Failure to Perform Safety Evaluations or Safety Evaluation Screenings."

###### **a. Inspection Scope (37551, 61726)**

On March 5, 1999, the inspectors observed the operators perform Procedure 02-OHP 4030.STP.054E, "East Residual Heat Removal Train Operability Test - Shutdown," Revision 7. Due to erratic flow indication on the RHR system, the surveillance test was stopped and the surveillance procedure was changed. The inspectors reviewed the procedure change and the applicable safety evaluation screening.

###### **b. Observations and Findings**

The inspectors reviewed the safety evaluation screening for Change No. 2 to the RHR pump surveillance procedure. The procedure change allowed the operators to set the balance of flow between the RHR heat exchanger outlet valve and the RHR heat exchanger bypass valve. The procedure change also allowed the operators to maintain RCS temperature by adjusting component cooling water (CCW) system flow to the RHR heat exchanger. The safety evaluation screening did not document this change as a change to the operation of the plant as described in the Updated Final Safety Analysis Report (UFSAR). The licensee concluded that a full safety evaluation in accordance

with 10 CFR 50.59 was not required as a result of the change to the RHR pump surveillance procedure.

The inspectors disagreed with the licensee's conclusion that a full safety evaluation was not required. The UFSAR, in Section 9.3, "Residual Heat Removal," stated that, "The cooldown rate of the reactor coolant is controlled by regulating the flow through the tube side of the residual heat exchangers. A bypass line, which serves both residual heat exchangers, is used to regulate the temperature of the return flow to the reactor coolant system as well as maintain a constant flow through the RHR system." The safety evaluation screening stated that choosing an RHR flow balance that minimized flow perturbations and using the CCW system to regulate RCS temperature did not represent direction outside the UFSAR requirement. The inspectors noted that the use of the CCW system to regulate RCS temperature was contrary to UFSAR Section 9.3 which indicated that the RHR heat exchanger bypass line was intended to regulate RCS temperature.

The inspectors observed that the licensee's use of 10 CFR 50.59 safety screenings was inconsistent and occasionally resulted in different conclusions for similar procedure changes. On March 12, the licensee performed a procedural change to both units' RHR operating procedures, 01[02]-OHP 4021.017.001, Revision 10 [9], "Operation of the Residual Heat Removal System." Similar to the surveillance procedure change described above, the operating procedure change allowed the use of the CCW system to regulate RCS temperature while in cold shutdown (RCS temperature below 200EF). The safety evaluation screening for this change documented that the use of the CCW system to regulate RCS temperature was contrary to the UFSAR and that a full safety evaluation was required. The inspectors reviewed the written safety evaluation for the change and determined that the limitations placed on the use of the CCW system to regulate RCS temperature provided adequate bases for the licensee's determination that no unreviewed safety question existed. The inspectors agreed with the licensee's conclusion that the operation of the plant using the CCW system to control RCS temperature while in cold shutdown was not safety significant. On March 15, 1999, the licensee wrote Condition Report 99-05389 to address a proposed change to the UFSAR.

10 CFR 50.59 required, in part, that the licensee shall maintain records of changes in procedures made pursuant to this section, to the extent that these changes constitute changes in the facility as described in the safety analysis report. These records must include a written safety evaluation which provides the bases for the determination that the change does not involve an unreviewed safety question.

Contrary to the above, on March 9, 1999, the inspectors identified that the licensee did not perform a safety evaluation for Change 2 to Surveillance Procedure 02-OHP 4030.STP.054E, "East Residual Heat Removal Train Operability Test - Shutdown," Revision 7. The inspectors considered the failure to maintain a written safety evaluation which provides the bases for the determination that the change did involve an unreviewed safety question to be a violation of 10 CFR 50.59. This Severity Level IV violation is being treated as an NCV. Appendix C of the Enforcement Policy requires that for Severity Level IV violations to be dispositioned as NCVs, they be appropriately placed in the licensee's corrective action program. Implicit in that requirement is that the corrective action program be fully acceptable. The D. C. Cook Plant corrective action program was not adequate and has been the focus of significant attention by your staff



to improve the program. While your staff and the NRC have not yet concluded that the corrective action program is fully effective, the corrective action program improvement efforts are underway and captured in the D. C. Cook Plant Restart Plan which is under the formal oversight of the NRC through the NRC Manual Chapter 0350 process, "Staff Guidelines for Restart Approval." Consequently, this issue is being dispositioned as an NCV (50-316/99004-04(DRP)).

c. Conclusions

Case Specific Checklist Item 4A, "Failure to Perform Safety Evaluations or Safety Evaluation Screenings." A safety evaluation screening performed in support of a change to a surveillance procedure did not identify that the procedure change resulted in operation of the plant other than as described in the Updated Final Safety Analysis Report. Additionally, the licensee's use of 10 CFR Part 50.59 safety evaluation screenings appeared inconsistent. A Non-Cited Violation of 10 CFR Part 50.59 was identified for the failure to perform a safety evaluation for the procedure change. The NRC's assessment of the licensee's effectiveness in addressing this case specific checklist item will continue as part of oversight of the licensee's restart effort.

#### IV. Plant Support

##### **R1 Radiological Protection and Chemistry Controls (71750)**

During normal resident inspection activities, routine observations were conducted in the area of radiological protection and chemistry controls using Inspection Procedure 71750. The inspectors identified two minor radiological problems with the implementation of the radiological protection program outside the plant protected area. The inspectors found a radiation area sign on a publicly accessible beach just outside the perimeter fence. Additionally, the Steam Generator (S/G) Storage Building, used for storing the removed Unit 2 steam generators, was cluttered with tools and work debris. No uncontrolled releases of radioactive material were identified. These findings are detailed below:

- C The inspectors found one "Caution - Restricted Area" sign on the publicly accessible beach. The sign was a magnetic backed, yellow and magenta colored placard with the words "Caution - Restricted Area" and a radiation tri-foil symbol. The sign contained markings which identified it as usable as a door sign, and also numbers which identified the sign as owned by American Electric Power, the D.C. Cook Plant owner. Licensee personnel routinely walkdown the beachfront areas, removing trash and debris, weather permitting.

The licensee initiated CR 99-07571 to document the occurrence. Radiation protection personnel performed an inspection of outdoor radioactive material storage boxes and plant access doors to identify the source of the sign. No missing signs were identified. As part of the condition report investigation, the licensee was evaluating the use of this type of magnetic sign in an outdoors environment.

- C During the inspection of the S/G Storage Building (referred to by the licensee as the S/G Mausoleum) the inspectors observed that the work areas were cluttered with tools, welding slag, grinding debris, scrap material, hoses, and electrical

cords. The S/Gs that had been removed during the Unit 2 S/G replacement project in 1988 were being stored within the building but they were being readied for shipment to a burial facility.

The radiation protection technician stated that due to the large size of the old Unit 2 S/Gs that the general area dose in the building was relatively high with no opportunities for low dose areas within the building (the highest general area dose rate was 30 mrem/hour). Due to the low contamination levels and little work remaining, the technicians determined that any dose received by the workers cleaning up the area would be unnecessary.

The inspectors discussed this finding with senior licensee management. The inspectors concluded that the S/G Mausoleum was not being routinely toured and that the cleanliness was not up to licensee management expectations. In response to the inspectors observations, licensee management directed the radiation protection technicians to improve the housekeeping in the area.

**S1 Conduct of Security and Safeguards Activities (71750)**

During normal resident inspection activities, routine observations were conducted in the area of security and safeguards activities using Inspection Procedure 71750. No discrepancies were noted.

**F1 Control of Fire Protection Activities (71750)**

During normal resident inspection activities, routine observations were conducted in the area of fire protection activities using Inspection Procedure 71750. No discrepancies were noted.

**V. Management Meetings**

**X1 Exit Meeting Summary**

The inspectors presented the inspection results to members of the licensee management at the conclusion of the inspection on April 16, 1999. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

## PARTIAL LIST OF PERSONS CONTACTED

### Licensee

#J. Arias, Licensing  
#C. Bakken, Site Vice President  
#P. Barrett, Performance Assurance  
#D. Cooper, Plant Manager  
#M. Greendonner, Plant Protection  
#S. Greenlee, Design Engineering  
#P. Holland, Radiation Protection  
#D. Kosloff, Licensing  
#W. Kropp, Performance Assurance  
#D. Kunsemiller, Director Regulatory Affairs  
#M. Marano, Business Services  
#J. Molden, Maintenance Director  
#T. Nooman, Director NFSA  
#T. O'Leary, Performance Assurance  
#R. Powers, Senior Vice President  
#T. Quaka, Safety Assessment  
#M. Rencheck, Vice President, Nuclear Engineering  
#A. Skakoski, Contractor  
#C. Vanderniet, Performances Assurance  
#L. Weber, Operations  
#T. Zemo, Engineering

# Denotes those present at the April 16, 1999, exit meeting.

## INSPECTIONS USED

IP 37551: Onsite Engineering  
IP 61726: Surveillance Observations  
IP 62707: Maintenance Observation  
IP 71707: Plant Operations  
IP 71750: Plant Support Activities  
IP 92700: Onsite Review of LERs  
IP 92902: Followup - Maintenance

## ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

50-315/316/99004-01	NCV	Inappropriate condition report categorization constituted a missed opportunity to evaluate a significant condition adverse to quality
50-315/316/99004-02	NCV	Failure of surveillance test procedures to contain instructions appropriate to the circumstances
50-316/99004-03	NCV	Failure to implement TS action statement for an inoperable PORV
50-316/99004-04	NCV	Failure to perform a safety evaluation

### Closed

50-315/316/99004-01	NCV	Inappropriate condition report categorization constituted a missed opportunity to evaluate a significant condition adverse to quality
50-315/316/99004-02	NCV	Failure of surveillance test procedures to contain instructions appropriate to the circumstances
50-315/316/99001-04	URI	Review of the licensee's root cause determination and development of corrective actions for the inadequate review and approval process
50-316/96006-00	LER	Power Operated Relief Valve inoperable in excess of the time allowed by the Technical Specification action statement, due to ground resulting from water in penetration flood-up tube
50-316/99004-03	NCV	Failure to implement TS action statement for an inoperable PORV
50-316/99004-04	NCV	Failure to perform a safety evaluation

### Discussed

None

## LIST OF ACRONYMS USED

ASM	Assistant Shift Manager
BIT	Boron Injection Tank
CCP	Centrifugal Charging Pump
CCW	Component Cooling Water
CFR	Code of Federal Regulations
CR	Condition Report
CVCS	Chemical and Volume Control System
DRP	Division of Reactor Projects
EMP	Electrical Maintenance Procedure
ESRR	Expanded System Readiness Review
ESW	Essential Service Water
HFA	Hinged Armature Auxiliary
I&C	Instrumentation and Controls
IHP	Instrument Head Procedure
IMP	Instrument Maintenance Procedure
JO	Job Order
kV	Kilovolts
LER	Licensee Event Report
MHP	Maintenance Head Procedure
MOV	Motor-Operated Valve
N/A	Not Applicable
NCV	Non-cited Violation
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
OHI	Operations Head Instruction
OHP	Operations Head Procedure
PMSO	Plant Manager's Standing Order
PMT	Post Maintenance Testing
PORV	Power Operated Relief Valve
ppm	Parts Per Million
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RWST	Refueling Water Storage Tank
STP	Surveillance Test Procedure
S/G	Steam Generator
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VTM	Vendor Technical Manual